What is claimed is:

1. A method of controlling drive of an endless belt by controlling rotation of, among a plurality of rotary support bodies over which said endless belt is passed, a drive rotary support body to which drive torque is transferred, said method comprising the steps of:

(a) detecting an angular displacement or an angular velocity of, among said plurality of rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque;

(b) separating from the angular displacement or the angular velocity detected an AC component of the angular displacement or the angular velocity having a frequency that corresponds to a periodic thickness variation of said belt in a circumferential direction; and

(c) controlling the rotation of said drive rotary support body in accordance with an amplitude and a phase of the AC component.

2. The method as claimed in claim 1, wherein step (b) comprises (d) separating a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other, and

step (c) comprises (e) controlling the rotation of said drive rotary support body in accordance with the plurality of AC components.

3. The method as claimed in claim 1, further comprising:

(f) executing test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference;

(g) storing information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential direction during the test drive;

(h) generating a target reference signal on the basis of a result of detection of the reference mark and the information stored; and

(i) controlling the rotation of said drive rotary support body in accordance with a result of comparison of the target reference signal and the AC component.

4. The method as claimed in claim 3, wherein step (b) comprises (d) separating a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other, and

step (c) comprises (e) controlling the rotation of said drive rotary support body in accordance with the plurality of AC components.

5. The method as claimed in claim 1, further comprising:

(j) executing test drive of said belt while varying an amplitude and a phase of a reference signal used to control the rotation of said drive rotary support body;

(k) setting the amplitude and the phase of the reference signal such that a difference between the AC component produced during the test drive and said reference signal becomes minimum; and

(l) controlling the rotation of said drive rotary support body in accordance with a result of comparison of the reference signal, which is generated to have the amplitude and the phase set by the test drive, and the AC component.

6. The method as claimed in claim 5, wherein step (b) comprises (d) separating a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other, and

step (c) comprises (e) controlling the rotation of said drive rotary support body in accordance with the plurality of AC components.

7. The method as claimed in claim 1, further comprising:

(m) processing the AC component by taking account of a radius of said driven rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said driven rotary support

body moves, a radius of said drive rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said drive rotary support body moves, and a period of time necessary for said belt to move from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact.

8. The method as claimed in claim 7, wherein step (b) comprises (d) separating a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other, and

step (c) comprises (e) controlling the rotation of said drive rotary support body in accordance with the plurality of AC components.

9. The method as claimed in claim 7, further comprising:

(f) executing test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference;

(g) storing information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential direction during the test drive;

(h) generating a target reference signal on the basis of a result of detection of the reference mark and the information stored; and

(i) controlling the rotation of said drive rotary support body in accordance with a result of comparison of the target reference signal and the AC component.

10. The method as claimed in claim 9, wherein step (b) comprises (d) separating a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other, and

step (c) comprises (e) controlling the rotation of said drive rotary support body in accordance with the plurality of AC components.

11. The method as claimed in claim 7, further comprising:

(j) executing test drive of said belt while varying an amplitude and a phase of a reference signal used to control the rotation of said drive rotary support body;

(k) setting the amplitude and the phase of the reference signal such that a difference between the AC component produced during the test drive and said reference signal becomes minimum; and

(l) controlling the rotation of said drive rotary support body in accordance with a result of comparison of the reference signal, which is generated to have the

amplitude and the phase set by the test drive, and the AC component.

12. The method as claimed in claim 11, wherein step (b) comprises (d) separating a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other, and

step (c) comprises (e) controlling the rotation of said drive rotary support body in accordance with the plurality of AC components.

13. In a device for controlling drive of an endless belt by controlling rotation of, among a plurality of rotary support bodies over which said endless belt is passed, a drive rotary support body to which drive torque is transferred, control means detects an angular displacement or an angular velocity of, among said plurality of rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque, separates from said angular displacement or said angular velocity detected an AC component of said angular displacement or said angular velocity having a frequency that corresponds to a periodic thickness variation of said endless belt in a circumferential direction, and controls the rotation of said drive rotary support body in accordance with an amplitude and a phase of said AC component.

14. The device as claimed in claim 13, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in accordance with said plurality of AC components.

15. The device as claimed in claim 13, wherein said control means is configured to execute test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference, store information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential direction during said test drive, generate a target reference signal on the basis of a result of detection of said reference mark and said information stored, and control the rotation of said drive rotary support body in accordance with a result of comparison of said target reference signal and said AC component.

16. The device as claimed in claim 15, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in

accordance with said plurality of AC components.

17. The device as claimed in claim 13, wherein said control means is configured to execute test drive of said belt while varying an amplitude and a phase of a reference signal used to control the rotation of said drive rotary support body, set the amplitude and the phase of the reference signal such that a difference between the AC component produced during said test drive and said reference signal becomes minimum, and controls the rotation of said drive rotary support body in accordance with a result of comparison of said reference signal, which is generated to have the amplitude and the phase set by said test drive, and said AC component.

18. The device as claimed in claim 17, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in accordance with said plurality of AC components.

19. The device as claimed in claim 13, wherein said control means is configured to process the AC component by taking account of a radius of said driven rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said driven rotary support body moves, a radius of said drive rotary

support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said drive rotary support body moves, and a period of time necessary for said belt to move from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact.

20. The device as claimed in claim 19, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in accordance with said plurality of AC components.

21. The device as claimed in claim 19, wherein said control means is configured to execute test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference, store information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential direction during said test drive, generate a target reference signal on the basis of a result of detection of said reference mark and said information stored, and control the rotation of said drive rotary support body in

accordance with a result of comparison of said target reference signal and said AC component.

22. The device as claimed in claim 21, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in accordance with said plurality of AC components.

23. The device as claimed in claim 19, wherein said control means is configured to execute test drive of said belt while varying an amplitude and a phase of a reference signal used to control the rotation of said drive rotary support body, set the amplitude and the phase of the reference signal such that a difference between the AC component produced during said test drive and said reference signal becomes minimum, and controls the rotation of said drive rotary support body in accordance with a result of comparison of said reference signal, which is generated to have the amplitude and the phase set by said test drive, and said AC component.

24. The device as claimed in claim 23, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in

accordance with said plurality of AC components.

25. A belt device comprising:

an endless belt passed over a plurality of rotary support bodies;

a drive source configured to output drive torque for driving said endless belt;

sensing means for sensing an angular displacement or an angular velocity of, among said plurality or rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque; and

a belt drive control device configured to control, based on an output of said sensing means, rotation of, among said plurality of rotary support bodies, a drive rotary support body to which the drive torque is transferred from said drive source, thereby controlling drive of said endless belt;

said belt drive control device comprising:

control means for separating from the angular displacement or the angular velocity sensed by said sensing means an AC component of said angular displacement or said angular velocity having a frequency that corresponds to a periodic thickness variation of said endless belt in a circumferential direction, and controlling the rotation of said drive rotary support body in accordance with an amplitude and a phase of said AC

component.

26. The device as claimed in claim 25, wherein said drive rotary support body and said driven rotary support body have a same radius.

27. The device as claimed in claim 26, wherein a distance by which said belt moves from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact is an odd multiple of a length corresponding to one-half of a period of the thickness variation of said belt in the circumferential direction.

28. The device as claimed in claim 25, wherein said drive rotary support body and said driven rotary support body are different in radius from each other, and

a distance by which said belt moves from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact is an even multiple of a length corresponding to one-half of a period of the thickness variation of said belt in the circumferential direction.

29. The device as claimed in claim 25, wherein said sensing means is mounted on one of a plurality of driven rotary support bodies located at a position little susceptible to the thickness variation ascribable to

temperature.

30. The device as claimed in claim 25, wherein said belt comprises a photoconductive belt for use in an image forming apparatus.

31. The device as claimed in claim 25, wherein said belt comprises an intermediate image transfer belt for use in an image forming apparatus.

32. The device as claimed in claim 25, wherein said belt comprises a belt included in an image forming apparatus for conveying a recording medium to a position where an image is to be transferred from an image carrier to said recording medium.

33. The device as claimed in claim 25, wherein said belt comprises a belt included in an image forming apparatus for conveying a recording medium to a position where an image is to be transferred from an intermediate image transfer body to said recording medium.

34. An image forming apparatus comprising:

an image carrier comprising an endless belt passed over a plurality of rotary support bodies;

latent image forming means for forming a latent image on said image carrier;

developing means for developing the latent image to thereby produce a corresponding toner image;

image transferring means for transferring the toner

image from said image carrier to a recording medium;

a drive source configured to output drive torque for driving said image carrier;

sensing means for sensing an angular displacement or an angular velocity of, among said plurality or rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque;

a belt drive control device configured to control, based on an output of said sensing means, rotation of, among said plurality of rotary support bodies, a drive rotary support body to which the drive torque is transferred from said drive source, thereby controlling drive of said endless belt, said belt drive control device detecting an angular displacement or an angular velocity of, among said plurality of rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque, and separating from said angular displacement or said angular velocity detected an AC component of said angular displacement or said angular velocity having a frequency that corresponds to a periodic thickness variation of said endless belt in a circumferential direction; and

control means for controlling the rotation of said drive rotary support body in accordance with an amplitude and a phase of the AC component.

35. The apparatus as claimed in claim 34, wherein said control means is configured to process the AC component by taking account of a radius of said driven rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said driven rotary support body moves, a radius of said drive rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said drive rotary support body moves, and a period of time necessary for said belt to move from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact.

36. The apparatus as claimed in claim 34, wherein said control means is configured to execute test drive of said belt while varying an amplitude and a phase of a reference signal used to control the rotation of said drive rotary support body, set the amplitude and the phase of the reference signal such that a difference between the AC component produced during said test drive and said reference signal becomes minimum, and control the rotation of said drive rotary support body in accordance with a result of comparison of said reference signal, which is generated to have the amplitude and the phase set by said test drive, and said AC component.

37. The apparatus as claimed in claim 34, wherein said control means is configured to execute test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference, store information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential direction during said test drive, generate a target reference signal on the basis of a result of detection of said reference mark and said information stored, and control the rotation of said drive rotary support body in accordance with a result of comparison of said target reference signal and said AC component.

38. The apparatus as claimed in claim 34, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in accordance with said plurality of AC components.

39. An image forming apparatus comprising:

an image carrier;

latent image forming means for forming a latent image on said image carrier;

developing means for developing the latent image to

thereby produce a corresponding toner image;

an intermediate image transfer body comprising an endless belt passed over a plurality of rotary support bodies;

first image transferring means for transferring the toner image from said image carrier to said intermediate image transfer body;

second image transferring means for transferring the toner image from said intermediate image transfer body to a recording medium;

a drive source configured to output drive torque for driving said intermediate image transfer body;

sensing means for sensing an angular displacement or an angular velocity of, among said plurality or rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque;

a belt drive control device configured to control, based on an output of said sensing means, rotation of, among said plurality of rotary support bodies, a drive rotary support body to which the drive torque is transferred from said drive source, thereby controlling drive of said intermediate image transfer body, said belt drive control device detecting an angular displacement or an angular velocity of, among said plurality of rotary support bodies, a driven rotary support body not contributing to transfer

of the drive torque, and separating from said angular displacement or said angular velocity detected an AC component of said angular displacement or said angular velocity having a frequency that corresponds to a periodic thickness variation of said intermediate image transfer body in a circumferential direction; and

control means for controlling the rotation of said drive rotary support body in accordance with an amplitud and a phase of said AC component.

40. The apparatus as claimed in claim 39, wherein said control means is configured to process the AC component by taking account of a radius of said driven rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said driven rotary support body moves, a radius of said drive rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said drive rotary support body moves, and a period of time necessary for said belt to move from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact.

41. The apparatus as claimed in claim 39, wherein said control means is configured to execute test drive of said belt while varying an amplitude and a phase of a

reference signal used to control the rotation of said drive rotary support body, set the amplitude and the phase of the reference signal such that a difference between the AC component produced during said test drive and said reference signal becomes minimum, and control the rotation of said drive rotary support body in accordance with a result of comparison of said reference signal, which is generated to have the amplitude and the phase set by said test drive, and said AC component.

42. The apparatus as claimed in claim 39, wherein said control means is configured to execute test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference, store information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential direction during said test drive, generate a target reference signal on the basis of a result of detection of said reference mark and said information stored, and control the rotation of said drive rotary support body in accordance with a result of comparison of said target reference signal and said AC component.

43. The apparatus as claimed in claim 39, wherein said control means is configured to separate a plurality

of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in accordance with said plurality of AC components.

44. An image forming apparatus comprising:

an image carrier;

latent image forming means for forming a latent image on said image carrier;

developing means for developing the latent image to thereby produce a corresponding toner image;

a conveying member comprising an endless belt, which is passed over a plurality of rotary support bodies, for conveying a recording medium;

image transferring means for transferring the toner image from said image carrier to the recording medium, which is being conveyed by said conveying member, with or without intermediary of an intermediate image transfer body;

a drive source configured to output drive torque for driving said conveying member;

sensing means for sensing an angular displacement or an angular velocity of, among said plurality or rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque;

a belt drive control device configured to control,

based on an output of said sensing means, rotation of, among said plurality of rotary support bodies, a drive rotary support body to which the drive torque is transferred from said drive source, thereby controlling drive of said conveying member, said belt drive control device detecting an angular displacement or an angular velocity of, among said plurality of rotary support bodies, a driven rotary support body not contributing to transfer of the drive torque, and separating from said angular displacement or said angular velocity detected an AC component of said angular displacement or said angular velocity having a frequency that corresponds to a periodic thickness variation of said conveying member in a circumferential direction; and

control means for controlling the rotation of said drive rotary support body in accordance with an amplitude and a phase of said AC component.

45. The apparatus as claimed in claim 44, wherein said control means is configured to process the AC component by taking account of a radius of said driven rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said driven rotary support body moves, a radius of said drive rotary support body, an effective belt thickness which is a reference for a speed at which part

of said belt contacting said drive rotary support body moves, and a period of time necessary for said belt to move from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact.

46. The apparatus as claimed in claim 44, wherein said control means is configured to execute test drive of said belt while varying an amplitude and a phase of a reference signal used to control the rotation of said drive rotary support body, set the amplitude and the phase of the reference signal such that a difference between the AC component produced during said test drive and said reference signal becomes minimum, and control the rotation of said drive rotary support body in accordance with a result of comparison of said reference signal, which is generated to have the amplitude and the phase set by said test drive, and said AC component.

47. The apparatus as claimed in claim 44, wherein said control means is configured to execute test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference, store information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential

direction during said test drive, generate a target reference signal on the basis of a result of detection of said reference mark and said information stored, and control the rotation of said drive rotary support body in accordance with a result of comparison of said target reference signal and said AC component.

48. The apparatus as claimed in claim 44, wherein said control means is configured to separate a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other and control the rotation of said drive rotary support body in accordance with said plurality of AC components.

49. In an image forming apparatus, a process cartridge comprises at least an image carrier and a belt drive control device and is removably mounted to a body of said image forming apparatus.

50. In a program for controlling drive of an endless belt by controlling rotation of, among a plurality of rotary support bodies over which said endless belt is passed, a drive rotary support body to which drive torque is transferred, a step of separating from data representative of an angular displacement or an angular velocity of, among said plurality of rotary support bodies, a driven rotary support body not contributing to transfer of said drive torque an AC component of said angular

displacement or said angular velocity having a frequency that corresponds to a periodic thickness variation of said endless belt in a circumferential direction and a step of controlling rotation of said drive rotary support body in accordance with an amplitude and a phase of said AC component are executed by a computer.

51. The program as claimed in claim 50, wherein the step of processing the AC component is executed by the computer in consideration of a radius of said driven rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said driven rotary support body moves, a radius of said drive rotary support body, an effective belt thickness which is a reference for a speed at which part of said belt contacting said drive rotary support body moves, and a period of time necessary for said belt to move from a center of a portion where said belt and said driven rotary support body contact to a center of a portion where said belt and said drive rotary support body contact.

52. The program as claimed in claim 50, wherein a step of executing test drive of said belt while varying an amplitude and a phase of a reference signal used to control the rotation of said drive rotary support body and setting the amplitude and the phase of the reference signal such that a difference between the AC component produced

during said test drive and said reference signal becomes minimum is executed by the computer, and

the rotation of said drive rotary support body is controlled in accordance with a result of comparison of said reference signal, which is generated to have the amplitude and the phase set by said test drive, and said AC component.

53. The program as claimed in claim 50, wherein a step of executing test drive that causes said drive rotary support body to rotate at a constant angular velocity by using a reference mark provided on said belt as a reference and storing information representative of the amplitude and the phase of the AC component appeared over at least one period of the thickness variation of said belt in the circumferential direction during said test drive and a step of generating a target reference signal on the basis of a result of detection of said reference mark and said information stored is executed by the computer, and

the rotation of said drive rotary support body is controlled in accordance with a result of comparison of said target reference signal and said AC component.

54. The program as claimed in claim 50, wherein the a plurality of AC components corresponding to the periodic variation of said belt and different in frequency from each other are separated, and the rotation of said drive rotary

support body is controlled in accordance with said plurality of AC components.

55. In a recording medium storing a program for controlling drive of an endless belt by controlling rotation of, among a plurality of rotary support bodies over which said endless belt is passed, a drive rotary support body to which drive torque is transferred, said program causes a computer to execute a step of separating from data representative of an angular displacement or an angular velocity of, among said plurality of rotary support bodies, a driven rotary support body not contributing to transfer of said drive torque an AC component of said angular displacement or said angular velocity having a frequency that corresponds to a periodic thickness variation of said endless belt in a circumferential direction and a step of controlling rotation of said drive rotary support body in accordance with an amplitude and a phase of said AC component are executed.